

12378 penta  
123678 Hexa

-3-

1,2,3,7,8,9-HEXACHLORODIBENZODIOXIN  
1,2,3,4,7,8-HEXACHLORODIBENZODIOXIN  
1,2,3,4,6,7,8-HEPTACHLORODIBENZODIOXIN  
OCTACHLORODIBENZODIOXIN  
2,3,7,8-TETRACHLORODIBENZOFURAN  
1,2,3,7,8-PENTACHLORODIBENZOFURAN  
2,3,4,7,8-PENTACHLORODIBENZOFURAN  
1,2,3,4,7,8-HEXACHLORODIBENZOFURAN  
1,2,3,6,7,8-HEXACHLORODIBENZOFURAN  
2,3,4,6,7,8-HEXACHLORODIBENZOFURAN  
1,2,3,7,8,9-HEXACHLORODIBENZOFURAN  
1,2,3,4,6,7,8-HEPTACHLORODIBENZOFURAN  
OCTACHLORODIBENZOFURAN  
TOTAL TETRACHLORODIBENZODIOXINS  
TOTAL PENTACHLORODIBENZODIOXINS  
TOTAL HEXACHLORODIBENZODIOXINS  
TOTAL HEPTACHLORODIBENZODIOXINS  
TOTAL TETRACHLORODIBENZOFURANS  
TOTAL PENTACHLORODIBENZOFURANS  
TOTAL HEXACHLORODIBENZOFURANS  
TOTAL HEPTACHLORODIBENZOFURANS

1,2,3,4,7,8,9-Hepta

7. As specified in the draft work plan, the deeper samples will be retained at the Occidental laboratory until the analytical results of the upper samples become available. The EPA/NYSDEC request that Occidental collect and retain in the Occidental laboratory enough sample volume of the lower samples to split with the government. Splitting of select lower samples will occur after the analytical results of the upper samples are evaluated by EPA/NYSDEC.
8. In addition to the schedule of Source Investigation/Dioxin Investigation/Sewer Evaluation tasks identified in Figure 6, a more detailed schedule of the dioxin sampling field activities must be provided. This additional schedule should specify the specific samples that are targeted for collection on each day. This will aid in scheduling EPA contractor support for the dioxin split sampling activities.
9. Comments regarding the sampling and analytical procedures are set forth in Attachment A of this letter.

Sewer Evaluation Work Plan Comments

10. Please see comment No. 2 above.
11. Please see comment No. 3 above.
12. Comments regarding the sampling and analytical procedures are set forth in Attachment A of this letter.

In order to expedite implementation of the Dioxin Investigation and Sewer Evaluation, Occidental should respond to the above comments within two weeks.

The EPA/NYSDEC will contact you to schedule a teleconference to discuss these comments.

If you have any immediate questions regarding these comments, please contact William Wertz, Ph.D. of the NYSDEC at (518) 457-9255 or Alan Straus of the EPA at (212) 264-5131.

Sincerely yours,

Paul R. Countermand, P.E.  
Director  
Bureau of Hazardous Waste Facility Permitting  
Division of Hazardous Substances Regulation  
New York State Department of  
Environmental Conservation

Andrew Bellina, Chief  
Hazardous Waste Facilities Branch  
Air and Waste Management Division  
United States Environmental Protection Agency  
Region II

Attachment

cc: P. Buechi, NYSDEC Region 9 w/attachment  
R. Osar, DOL w/attachment  
K. Maiurano, NYSDEC w/attachment  
W. Wertz, NYSDEC w/attachment  
S. Kaminski, NYSDEC w/attachment  
T. Knickerbocker, URS w/attachment  
A. Angers, Alliance w/attachment

bcc: P. Countermand, NYSDEC w/attachment  
A. Straus, 2AWM-HWF w/attachment  
L. Lazarus, 2ESD-MM w/attachment  
L. Livingston, 2OPM-PA w/attachment



## ATTACHMENT A

1. Response to EPA/NYSDEC Comment 14f Dioxin Work Plan Pages A3, A4 - Too many reference manuals are being cited. References to the SDCP are acceptable. References to the HPQAP and other Occidental publications should be deleted. The relevant pages from these manuals should be attached to the appropriate work plans.
2. Response to EPA/NYSDEC comments 14h - The data validation format is acceptable, but the proposed qualification criteria for holding time, surrogates, spikes, tuning, spectra, chromatography, internal standards, and calibration must be stated. We suggest that the Functional Guidelines or the Region II data validation protocols be used. Other validation procedures may be used with EPA's prior approval.
3. Response to EPA/NYSDEC Comments 14j - Change isopropanol to methanol.
4. Response to EPA/NYSDEC Comments 23 and 24d - Why are the SIP Work plan protocols being used instead of the SDCP Appendix C protocols? For clarity, the information requested in EPA/NYSDEC Comments 23 and 24d should be listed in the sewer work plan.
5. Dioxin Work Plan Table 2.2 - The holding time for water semi-volatiles and pesticides/PCBs should be 5 days to extraction, 40 days to analysis. The following sample preservatives should be added:

Soil - VOA, BNA, Pest/PCB - 4°C  
Water - BNA, Pest/PCB - 4°C

The following procedure, adapted from the drinking water methods should be used for acidification of volatile organic samples with HCl to a pH less than 2.

Adjust the pH of the sample to <2 by carefully adding 1:1 HCl drop by drop to the required 2 (40 ml) VOA sample vials. The number of drops of 1:1 HCl required should be determined on a third portion of sample water of equal volume.

It should be noted that if acidification of the sample causes effervescence, the sample should be submitted without preservation except for cooling to 4 degrees C. This sample property should be appropriately noted when present. The 1:1 HCl solution should be made up with demonstrated analyte-free deionized water.

All of the organic site specific indicator parameters must be listed. Soil and water BNA/pesticide/PCB samples that will have MS/MSD analysis must be triple volume. The following sample containers should be used:

Soil BNA/Pest/PCB - One 8 oz. wide mouth glass jar  
Water BNA/Pest/PCB - Four 1-liter glass bottles

6. Dioxin Work Plan Page A-4 - The dioxin data validation SOP is a Region II SOP. Which validation SOP will be used to validate the VOA/BNA/Pesticides/PCBs/Indicator parameters?
7. Dioxin Work Plan Page 28 - How will VOA/BNA/Pest/PCB samples be split and homogenized? (VOA samples may not be homogenized.)
8. Sewer Work Plan Table 4 - The container for soil semi-volatiles should be one 8 oz. wide mouth glass jar. The field blanks must be analyzed for all analytes of concern (Table 1). Why do Tables 1 and 3 have different analytes? The container for water semi-volatiles should be four 1 liter glass bottles. These samples should be stored at 4°C. The sample container for water VOAs should be two 40 ml glass vials. See comment 6 for VOA preservation requirements.
9. Sewer Work Plan Page 12 - Data validation criteria must be specified.
10. Sewer Work Plan Page 40 - The sample splitting procedure may not be used for VOA samples.



NEW YORK STATE DEPARTMENT OF HEALTH  
WADSWORTH CENTER FOR LABORATORIES AND RESEARCH

PAGE 1

RESULTS OF EXAMINATION

FINAL REPORT

SAMPLE ID: 884633 SAMPLE RECEIVED: 88/12/23/ CHARGE: 90.00  
PROGRAM: 6501: BUREAU OF WESTERN REMEDIAL ACTION - DEC  
SOURCE ID: DRAINAGE BASIN: 03 GAZETTEER CODE: 3155  
POLITICAL SUBDIVISION: NIAGARA COUNTY: NIAGARA  
LATITUDE: 43 04 03. LONGITUDE: 79 00 50. Z DIRECTION:  
LOCATION: OCC BUFFALO AVENUE PLANT, NIAGARA FALLS  
DESCRIPTION: NORTH OF BUILDING N-21, SAMPLE 24  
REPORTING LAB: TOX: LAB FOR ORGANIC ANALYTICAL CHEMISTRY  
TEST PATTERN: DIOX-PPT1: DIOXINS &/OR DIBENZOFURANS  
SAMPLE TYPE: 600: SOIL, SAND  
TIME OF SAMPLING: 88/12/20 15:55 DATE PRINTED: 89/03/22

ANALYSIS: DIOX-PPT1 DIOXINS &/OR DIBENZOFURANS - IN SOLIDS (GC/MS)  
DATE PRINTED: 89/03/22 FINAL REPORT

PARAMETER	RESULT	
2,3,7,8-TETRACHLORODIBENZODIOXIN	79. PG/G	.07 ppt OCC: ND at 0.3 ppb
1,2,3,7,8-PENTACHLORODIBENZODIOXIN	72. PG/G	
1,2,3,6,7,8-HEXACHLORODIBENZODIOXIN	150. PG/G	
1,2,3,7,8,9-HEXACHLORODIBENZODIOXIN	120. PG/G	.12 ppb
1,2,3,4,7,8-HEXACHLORODIBENZODIOXIN	120. PG/G	
1,2,3,4,6,7,8-HEPTACHLORODIBENZODIOXIN	2100. PG/G	2. ppt
OCTACHLORODIBENZODIOXIN	15000. PG/G	15 ppt
2,3,7,8-TETRACHLORODIBENZOFURAN	< 15. PG/G	.015
1,2,3,7,8-PENTACHLORODIBENZOFURAN	110. PG/G	
2,3,4,7,8-PENTACHLORODIBENZOFURAN	120. PG/G	
1,2,3,4,7,8-HEXACHLORODIBENZOFURAN	210. PG/G	
1,2,3,6,7,8-HEXACHLORODIBENZOFURAN	65. PG/G	
2,3,4,6,7,8-HEXACHLORODIBENZOFURAN	< 10. PG/G	
1,2,3,7,8,9-HEXACHLORODIBENZOFURAN	< 9. PG/G	
1,2,3,4,6,7,8-HEPTACHLORODIBENZOFURAN	660. PG/G	
OCTACHLORODIBENZOFURAN	8500. PG/G	
TOTAL TETRACHLORODIBENZODIOXINS	79. PG/G	OCC: ND at 0.3 ppb
TOTAL PENTACHLORODIBENZODIOXINS	72. PG/G	
TOTAL HEXACHLORODIBENZODIOXINS	700. PG/G	
TOTAL HEPTACHLORODIBENZODIOXINS	3500. PG/G	
TOTAL TETRACHLORODIBENZOFURANS	560. PG/G	
TOTAL PENTACHLORODIBENZOFURANS	740. PG/G	
TOTAL HEXACHLORODIBENZOFURANS	810. PG/G	
TOTAL HEPTACHLORODIBENZOFURANS	990. PG/G	

\*\*\* END OF REPORT \*\*\*

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JOHN WILLSON  
BUREAU OF WESTERN REMEDIAL ACTION  
DEPT. ENVIRONMENTAL CONSERVATION  
50 WOLF RD.  
ALBANY, NY 12233

SUBMITTED BY: MAIURANO

KM

NEW YORK STATE DEPARTMENT OF HEALTH  
WADSWORTH CENTER FOR LABORATORIES AND RESEARCH

PAGE 1

RESULTS OF EXAMINATION

FINAL REPORT

SAMPLE ID: 884634 SAMPLE RECEIVED: 88/12/23/ CHARGE: 50.00  
 PROGRAM: 6501: BUREAU OF WESTERN REMEDIAL ACTION - DEC  
 SOURCE ID: DRAINAGE BASIN: 03 GAZETTEER CODE: 3155  
 POLITICAL SUBDIVISION: NIAGARA COUNTY: NIAGARA  
 LATITUDE: 43 04 03. LONGITUDE: 79 00 50. Z DIRECTION:  
 LOCATION: OCC BUFFALO AVENUE PLANT, NIAGARA FALLS  
 DESCRIPTION: SOUTHWEST CORNER BUILDING F-2, SAMPLE 26  
 REPORTING LAB: TOX: LAB FOR ORGANIC ANALYTICAL CHEMISTRY  
 TEST PATTERN: DIOXFURAN: CHLORINATED DIBENZO DIOXINS & FURANS  
 SAMPLE TYPE: 600: SOIL, SAND  
 TIME OF SAMPLING: 88/12/21 10:24 DATE PRINTED: 89/08/01

&lt;&gt; DATA SYSTEM FAILED TO RESOLVE PEAKS DUE TO OVERLAP.

&lt;&gt;

ANALYSIS: DIOXFURAN DIOXINS &amp;/OR DIBENZOFURANS (GC/MS)

DATE PRINTED: 89/08/01

FINAL REPORT

-----PARAMETER-----	-----RESULT-----
2,3,7,8-TETRACHLORODIBENZODIOXIN	< 3. NANOGRAM/G
1,2,3,7,8-PENTACHLORODIBENZODIOXIN	< 6. NANOGRAM/G
1,2,3,6,7,8-HEXACHLORODIBENZODIOXIN	< 43. NANOGRAM/G
1,2,3,7,8,9-HEXACHLORODIBENZODIOXIN	7200 NANOGRAM/G
1,2,3,4,7,8-HEXACHLORODIBENZODIOXIN	< 50. NANOGRAM/G
1,2,3,4,6,7,8-HEPTACHLORODIBENZODIOXIN	11000. NANOGRAM/G
OCTACHLORODIBENZODIOXIN	22000. NANOGRAM/G
2,3,7,8-TETRACHLORODIBENZOFURAN	< 3. NANOGRAM/G
1,2,3,7,8-PENTACHLORODIBENZOFURAN	17000. NANOGRAM/G
2,3,4,7,8-PENTACHLORODIBENZOFURAN	< 5. NANOGRAM/G
1,2,3,4,7,8-HEXACHLORODIBENZOFURAN	< 7. NANOGRAM/G
1,2,3,6,7,8-HEXACHLORODIBENZOFURAN	< 8. NANOGRAM/G
2,3,4,6,7,8-HEXACHLORODIBENZOFURAN	< 10. NANOGRAM/G
1,2,3,7,8,9-HEXACHLORODIBENZOFURAN	< 8. NANOGRAM/G
1,2,3,4,6,7,8-HEPTACHLORODIBENZOFURAN	< 26. NANOGRAM/G
OCTACHLORODIBENZOFURAN	1500000. NANOGRAM/G
TOTAL TETRACHLORODIBENZODIOXINS	3800. NANOGRAM/G
TOTAL PENTACHLORODIBENZODIOXINS	7900. NANOGRAM/G
TOTAL HEXACHLORODIBENZODIOXINS	61000. NANOGRAM/G
TOTAL HEPTACHLORODIBENZODIOXINS	20000. NANOGRAM/G
TOTAL TETRACHLORODIBENZOFURANS	79000. NANOGRAM/G
TOTAL PENTACHLORODIBENZOFURANS	190000. NANOGRAM/G
TOTAL HEXACHLORODIBENZOFURANS	460000. NANOGRAM/G
TOTAL HEPTACHLORODIBENZOFURANS	640000. NANOGRAM/G

\*\*\*\* END OF REPORT \*\*\*\*

1234789 Hepta furan

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ED BELLMORE (RM. 222)  
 BUREAU OF WESTERN REMEDIAL ACTION  
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 50 WOLF RD.  
 ALBANY, NY 12233

SUBMITTED BY: MAIURANO

NEW YORK STATE DEPARTMENT OF HEALTH  
WADSWORTH CENTER FOR LABORATORIES AND RESEARCH

A Straus

PAGE 1

RESULTS OF EXAMINATION

FINAL REPORT(REV)

SAMPLE ID: 884634 SAMPLE RECEIVED: 88/12/23/ CHARGE: 50.00  
 PROGRAM: 6501:DIV. HAZARDOUS WASTE REMED - BUR WESTERN REMEDIAL ACTION  
 SOURCE ID: DRAINAGE BASIN: 03 GAZETTEER CODE: 3155  
 POLITICAL SUBDIVISION: NIAGARA COUNTY: NIAGARA  
 LATITUDE: 43 04 03. LONGITUDE: 79 00 50. Z DIRECTION:  
 LOCATION: OCC BUFFALO AVENUE PLANT, NIAGARA FALLS  
 DESCRIPTION: SOUTHWEST CORNER BUILDING F-2, SAMPLE 26  
 REPORTING LAB: TOX: LAB FOR ORGANIC ANALYTICAL CHEMISTRY  
 TEST PATTERN: DIOXFURAN: CHLORINATED DIBENZO DIOXINS & FURANS  
 SAMPLE TYPE: 600: SOIL, SAND  
 TIME OF SAMPLING: 88/12/21 10:24 DATE PRINTED: 90/03/08

REVISION DATE 90/03/07, TEST PATTERN CODE CHANGED, WAS: DIOX-PPT1  
 REVISION DATE 90/03/06, TEST PATTERN CODE CHANGED, WAS: DIOXFURAN

&lt;&gt; Data system failed to resolve peaks due to overlap.

&lt;&gt;

ANALYSIS: DIOXFURAN DIOXINS &/or DIBENZOFURANS (GC/MS)  
 DATE PRINTED: 90/03/08

FINAL REPORT

PPT

-----PARAMETER-----	-----RESULT-----
2,3,7,8-TETRACHLORODIBENZODIOXIN	3.5 NANOGRAM/G
1,2,3,7,8-PENTACHLORODIBENZODIOXIN	11. NANOGRAM/G
1,2,3,6,7,8-HEXACHLORODIBENZODIOXIN	58. NANOGRAM/G
1,2,3,7,8,9-HEXACHLORODIBENZODIOXIN	28. NANOGRAM/G
1,2,3,4,7,8-HEXACHLORODIBENZODIOXIN	19. NANOGRAM/G
1,2,3,4,6,7,8-HEPTACHLORODIBENZODIOXIN	240. NANOGRAM/G
OCTACHLORODIBENZODIOXIN	550. NANOGRAM/G
2,3,7,8-TETRACHLORODIBENZOFURAN	320. NANOGRAM/G
1,2,3,7,8-PENTACHLORODIBENZOFURAN	99. NANOGRAM/G
2,3,4,7,8-PENTACHLORODIBENZOFURAN	630. NANOGRAM/G
1,2,3,4,7,8-HEXACHLORODIBENZOFURAN	4800. NANOGRAM/G
1,2,3,6,7,8-HEXACHLORODIBENZOFURAN	780. NANOGRAM/G
2,3,4,6,7,8-HEXACHLORODIBENZOFURAN	390. NANOGRAM/G
1,2,3,7,8,9-HEXACHLORODIBENZOFURAN	13. NANOGRAM/G
1,2,3,4,6,7,8-HEPTACHLORODIBENZOFURAN	17000. NANOGRAM/G
OCTACHLORODIBENZOFURAN	34000. NANOGRAM/G
TOTAL TETRACHLORODIBENZODIOXINS	62. NANOGRAM/G
TOTAL PENTACHLORODIBENZODIOXINS	86. NANOGRAM/G
TOTAL HEXACHLORODIBENZODIOXINS	240. NANOGRAM/G
TOTAL HEPTACHLORODIBENZODIOXINS	390. NANOGRAM/G
TOTAL TETRACHLORODIBENZOFURANS	1600. NANOGRAM/G
TOTAL PENTACHLORODIBENZOFURANS	4300. NANOGRAM/G
TOTAL HEXACHLORODIBENZOFURANS	9600. NANOGRAM/G
TOTAL HEPTACHLORODIBENZOFURANS	20000. NANOGRAM/G

\*\*\*\* END OF REPORT \*\*\*\*

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EDWARD BELMORE (RM. 222)  
 BUREAU OF WESTERN REMEDIAL ACTION  
 DEP'T. ENVIRONMENTAL CONSERVATION  
 50 WOLF RD.  
 ALBANY, NY 12233

SUBMITTED BY: MAIURANO



JUN 14 1989

Mr. Alan F. Weston, Ph.D.  
Manager  
Analytical Services  
Special Environmental Programs  
Occidental Chemical Corporation  
360 Rainbow Boulevard - South  
P.O. Box 728  
Niagara Falls, New York 14302

Re: Resource Conservation and Recovery Act (RCRA)  
Occidental Chemical Corporation - Buffalo Avenue Plant  
EPA I.D. No. NYD000824482  
Dioxin Investigation Work Plan  
Sewer Evaluation Work Plan

Dear Mr. Weston:

Both the New York State Department of Environmental Conservation (NYSDEC) and the United States Environmental Protection Agency (EPA) have completed review of the Dioxin Investigation Work Plan, and the Sewer Evaluation Work Plan which were submitted by Occidental Chemical Corporation in August 1988. Although the investigative approaches which were proposed in the Work Plans meet most of the agencies objectives, some aspects of the proposed plans must be clarified and others must be enhanced before the plans can be approved. To that end, the following comments are provided:

NYSDEC AND EPA COMMENTS ON THE PROPOSED DIOXIN INVESTIGATION WORK PLAN AND SEWER EVALUATION WORK PLAN

Dioxin Investigation Work Plan

1. To be consistent with the requirements of Module III of the Permit, strike the word dioxin from the last sentence of the paragraph on page 2. The purpose of the Work Plan should be to "better define the extent of releases or threatened releases."
2. a. Since dioxin has been detected in the U-Area at locations 305 (2 ppb) and 306 (26.7 ppb), it is necessary to collect deeper samples at these locations,



in order to determine the vertical extent of contamination. In addition to the proposal, in Section 3.1, to collect and analyze soil from the 6 to 18 inch depth at these two locations, soil should be collected down to the clay. Data from wells in the vicinity indicate that the depth to clay is approximately 9 to 12 feet below the land surface.

If dioxin is detected at or above 1 ppb in the 6 to 18 inch depth interval, dioxin analysis must be performed on the next 3 foot interval. If dioxin is detected in this 3 foot interval, the next 3 foot interval must be analyzed for dioxin, and so forth.

- b. As proposed for sample locations 310 through 315, if dioxin is detected at or above 1 ppb in the 0 to 6 inch depth interval, dioxin analysis will be performed on the 6 to 18 inch depth sample. (The 6 to 18 inch depth sample would have already been collected, at the same time the 0 to 6 inch sample was collected.) If dioxin is detected at or above 1 ppb in the deeper sample, additional samples down to the clay must be collected for a phased analysis, similar to that described in 1.a. above.
3. With regard to Section 3.2 (E-4 Vector), in addition to the 0 to 6 inch depth soil samples proposed to be collected for dioxin analysis at locations 316 through 319, samples should be collected from the 6 to 18 inch depth. The deeper samples should be analyzed for dioxin only if the upper samples contain dioxin at or above 1 ppb.
4. Section 3.3, Railroad Area.
  - a. Since dioxin has been found in surface samples along the railroad tracks at former locations 301, 302, and 304, additional deeper samples, to the 18 inch depth, should be collected at these locations and analyzed for dioxin.
  - b. At proposed sample locations 320 and 321, soil samples, from the 6 to 18 inch depth interval, should be collected. These deeper samples need only be analyzed if the surface samples contain dioxin at or above 1 ppb.
5. Section 3.3 of the Work Plan references the vector survey protocols from "TCDD survey" (presumably the Occidental document entitled "Work Plan Survey of TCDD Migration From TCP Production Area, Buffalo Avenue Plant Site," August 1986) to be used for soil borings. The methodology to be used for collection of soil samples, sediment samples, and

groundwater samples, for all areas, must be described in the Work Plan or the appropriate references to other work plans must be provided.

6. Occidental must specify how the fraction of the field sample, for dioxin/chemistry analysis, will be selected.
7. The proposal for the D-Area soil sampling and analysis for organics, included in Section 3.5, must be modified.
  - a. The Work Plan references both the Hazardous Substances List (HSL) and the Target Compound List (TCL). Since the HSL has been replaced by the TCL, the TCL parameters should be analyzed for.
  - b. A soil sample should be collected for analysis of the TCL parameters from each 3 foot length of split spoon sample. One composite sample from the entire core length is not acceptable.
  - c. No compositing will be allowed for volatile analysis.
  - d. The top three foot interval of soil at proposed sample locations FG-2 and FG-4 should be analyzed for the TCL parameters, to determine if these compounds are present and potentially contributing to dioxin migration. The previous S-11 surface sample (adjacent to proposed sample location FG-2) showed dioxin at 577 ppb, and the previous S-17 surface sample (near proposed sample FG-4) showed 18,600 ppb of dioxin.
8. Regarding Section 3.9:
  - a. On page 13 it is stated "selected samples of bedding from both of these utilities..." Please specify the criteria which will be used to determine where to "select" the samples. Also, clarify which utility beds are to be evaluated.
  - b. On page 14, it is indicated that continuous split spoon samples will be logged according to geologic stratigraphy. Visual and olfactory observations, where appropriate, of chemical presence should also be included in the log descriptions.
9. Drill cuttings will not be allowed to be placed back into the boreholes. Waste handling, storage and disposition of the cuttings must be in accordance with Section 10.2 and 10.3 of Appendix A of the SDCP.
10. In Section 3.10, Occidental proposes to submit a hydraulic/chemical report 30 days after the final month of groundwater



level measurements. Occidental should submit the chemical data as soon as it becomes available, and follow-up with the hydraulic data in a subsequent submittal.

11. Section 3.11 (Radio Tower Property) must be expanded.

- a. All construction/earth moving/soil disturbances that have occurred in the Radio Tower Area since the follow-up dioxin sampling of 1986 must be documented.
- b. The sampling strategy for the Radio Tower Area, provided in Attachment C to the Work Plan, was originally prepared by NUS Corporation for the EPA. The NUS strategy indicates that, in order to further define the areal extent of dioxin, 27 surface samples is appropriate for Area A of the Radio Tower Area. The number of samples Occidental proposes for Subareas I and II appears acceptable. However, to be consistent with the NUS strategy, a total of 27 surface samples for Area A (including Subareas III and IV) is required. Therefore, the Work Plan should also include 8 samples in Subarea III and 10 samples in Subarea IV.
- c. Section 3.1.1 must specify a 0 to 6 inch depth for the surface samples.
- d. The vertical extent of dioxin must also be determined. The Work Plan must include a proposal to carry out a full characterization.
  - i. At each location where dioxin has already been detected at the surface at 1 ppb or greater, depth samples must be collected. Since the previous surface samples in this area were collected from the soil surface to a depth of approximately 2 inches, the deeper samples should be collected from 2 inches to the clay horizon. Stratigraphic data indicates that the top of clay, in this area, is at a depth of approximately 8 to 9.5 feet. Dioxin analysis should be performed on the 2 to 18 inch depth interval. If dioxin is detected at or above 1 ppb, in this 2 to 18 inch depth interval, dioxin analysis on the next 3 foot interval must be performed. If dioxin is detected in this 3 foot interval, dioxin analysis must be performed on the next 3 foot interval, and so forth, to the clay.
  - ii. In addition to the surface samples required in 11.b. above, an additional sample from the 6 to 18 inch depth should be collected at each of the 27 sample locations. This lower sample need only be

analyzed if dioxin is present in the upper sample at 1 ppb or greater. If dioxin is detected in these deeper samples at 1 ppb or greater, additional samples, to the top of clay, must be collected for a phased dioxin analysis, as described in 11.d.i. above.

- e. This Section must include a figure that illustrates all proposed sampling locations in the Radio Tower Area.
- 12. In addition to analyzing for 2,3,7,8-TCDD, total TCDD should also be analyzed for.
- 13. At those locations where NAPL is identified during field work, Occidental must collect NAPL for analysis of dioxin and the SDCP General Parameters.
- 14. Comments regarding the sampling and analytical procedures are set forth in Attachment 1 of this letter.
- 15. The Work Plan must specify that, upon request, split samples will be provided to EPA or NYSDEC.
- 16. The Work Plan must include a schedule of implementation for sampling at each geographic area of the project.

#### Sewer Evaluation Work Plan

- 17. The soil gas samples are proposed to be collected above the water table, between a depth of 3 to 5 feet below the land surface. Occidental must include a provision for selecting alternate sampling locations if the water table is encountered at the proposed sampling interval.
- 18. The preliminary selection of monitoring well locations specifies that the wells will be located every 100 feet along the force mains. Final selection of the monitoring well locations is subject to the soil gas survey results. Occidental must describe the precautions that will be taken in order not to locate the monitoring wells based on high soil gas survey levels resulting from sources other than the sewer force mains (e.g., surface spills, soil/groundwater contamination from other SWMUs).
- 19. Final well locations and soil gas survey locations should also be biased according to the locations of sewer pipe joints.
- 20. Occidental must describe the limitations of the soil gas monitoring device. Specifically, the Work Plan must state whether a total concentration of organics or concentrations of individual compounds will be measured; the detection